PERLA MOLINA

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EDUCATION

Stanford University — Stanford, CA *Jun 2023 - Current*
- **Ph.D.:** Biomedical Data Science *GPA 3.65*

University Of San Francisco — San Francisco, CA *Aug 2019 - May 2023*
- **Bachelor of Science:** Major in Data Science (Cum Laude Honors) *GPA 3.66*
- **Associate of Business & Management**: Minor in Business Analytics

AWARDS & HONORS

Pi Mu Epsilon (National Undergraduate Honor Society in Mathematics) *May 2022*
- Honorary status for students in a math-related major with excellent academic standing and a good relationship with the department
- Induction into the California Rho chapter of Pi Mu Epsilon
- Will receive special recognition for it at the graduation ceremony

Undergraduate Newmark Women in Tech Scholarship *Aug 2021 - May 2023*
- Merit and financial status-based scholarship for underrepresented women in the technology majors
- Received awards for the 2021 and 2022 applications
- Selected amongst a group of 20 students
- Recognition of arduous work and grit for being a woman in a field that has a drastic gender gap

Hispanic Scholarship Fund Scholarship 2022 *January 2022*
- Merit-based and financial status-based scholarship for outstanding students who identify as Hispanic/Latino/a/e
- Received the designation of HSF Scholar from among a highly competitive pool of applicants
- Awarded scholarship from a smaller pool of HSF Scholars for higher academic standing and financial need

Dean's Honor Roll *May 2020 - May 2023*
- Honorary status and congratulatory certificate from the College of Arts and Sciences for my academic achievement during a specific semester
- Received honor roll status for Fall 2022, Spring 2022, Fall 2021, Spring 2021, Fall 2020, Spring 2020
- Determined to continue to receive honor roll status until completion of undergraduate studies

Provost Scholarship *Aug 2019 - May 2023*
- Merit-based scholarship that started from pre-college
- Continuously merit-based throughout my undergraduate studies (remains awarded throughout college based on grades)

University Tuition Grant *Aug 2019 - May 2023*
- Merit-based scholarship that started from pre-college
- Continuously merit-based throughout my undergraduate studies (remains awarded throughout college based on grades)

RELATED COURSEWORK

Course (credit hours)
*Currently taking**

- Applied Business Technology (2)
- Bioinformatics for Stem Cell & Cancer Biology (3)*
- Biomedical Data Science (3)*

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- Clinical Trial Design in the Age of Precision Medicine (3)*
- Data Mining (4)
- Data Structures & Algorithms (4)
- Data Wrangling & Digital Analytics (4)
- Database Systems (4)
- General Biology w/ Lab (4)
- Human Rights & Health (1)*
- Linear Regression (4)
- Modern Statistics for Modern Biology (3)
- Numerical Analysis (4)
- Probability w/ Applications (4)
- Psychological Statistics (4)
- Representations & Algorithms for Computational Molecular Biology (3)
- Statistical Inference w/ Applications (4)
- Statistical Learning (Machine Learning) (4)
- Systems in Organization (2)
- Techniques in Tissue Culture w/ Lab (4)
- Visualizing Data w/ Tableau (2)

UNIVERSITY LEADERSHIP & MEMBERSHIP

ADVANCE Summer Institute Program (Stanford) *Jun 2023 - Aug 2023*
- Nominated and selected to be a part of institute through Ph.D. program
- Participate in first laboratory rotation within program (see"Predicting Pre-Term Birth From Proteomics Pregnancy Data" under PROJECTS & RESEARCH)
- Engaged with Stanford Biosciences graduate students, postdoctoral fellows, and faculty members in various academic workshops, group activities, and one on one mentoring
- Participated and engaged in professional and career training that prepares scholars for graduate studies and building professional networks
- Engaged in community building and leadership training events and activities

Association of Women in Mathematics (USF) *Aug 2020 - May 2023*
- Vice President from May to Dec 2021
- Promoted to President in Jan 2022
- Created a website for students and faculty to access more information about the club, upcoming events, and important announcements (https://sites.google.com/view/awmusfca)
- In charge of administrative tasks and communications including but not limited to coordinating meetings, organizing operational tasks of all other executive board members, and communicating with faculty advisors and school administration to approve events
- Administered an initiative to revive the club after the pandemic and encourage women in mathematics and other related fields
- Created new annual fundraising events and hosted the club's first ever Datathon

Data Science Association (USF) *Aug 2020 - May 2023*
- Regular member of school club
- Participated in networking and career info sessions
- Helped with reviving the club post-pandemic

ACV (Anime, Culture, Video Games) Club (USF) *Aug 2019 - May 2023*
- Executive Board Member from May 2022
- Organized events to create spaces to relax, have fun, and meet people of similar interests
- Monitored discord server to ensure inclusivity and the safety of online discourse
- Aided in keeping the club active and helped to reinstate its club status with the school post-pandemic

Women in Tech Club (USF) *Aug 2019 - May 2023*
- Regular member of school club
- Participated in networking and coding sessions
- Attended talks of successful women in the industry and academia hosted by the club

PROJECTS & RESEARCH

Using Dirichlet Gaussian Processes to Analyze Gene Expression of Lung Cancer Metastasis Progression - Lab Rotation Project (Stanford)   *Sept - Dec 2023*
- Updated and edited the Dirichlet Process Gaussian Process (DPGP) software for implementation
- Extracted and formatted RNA-seq data from a wet lab using statistical methods and tools in order to use the DPGP software to analyze gene expression
- Analyzed the gene expression outputs and model performance of the top 3 and lowest 2 frequent cell types in the dataset
- Results showed steady trends of up and down regulation of genes per cell type over time
- Results of performance simultaneously illustrated the need for better efficiency of the DPGP model as it could not handle large datasets and the significance of using DPGP to analyze gene expression over time

Predicting Pre-Term Birth From Proteomics Pregnancy Data - Lab Rotation Project (Stanford)   *Jun - Aug 2023*
- Used XGBoost and LASSO machine learning methods to create algorithms to predict pre-term birth from proteomic pregnancy data
- Analyzed performance and significance between trimesters 1 and 3, and their delta
- Results from XGBoost model showed better performance and p-value in trimester 3 and the trimester delta
- Results from LASSO model revealed dimension reduction doesn't contribute to significance of model for any trimester modality

Linear Regression Methods on Cardiovascular Disease Dataset - Class Project in R (USF)   *Dec 2022*
- Created usable functions using LASSO, Ridge Regression, and Ordinary Least Squares methods to perform predictive and explanatory analysis on any dataset
- Selected the best predictive model for high systolic blood pressure of patients with cardiovascular health problems
- Conducted diagnostics and transformations on the data to enhance analysis of models
- Discovered high sensitivity of the data by outliers and the necessity to remove them to optimize performance of our regression functions
- Explanatory model revealed the most significant factors associated with high blood pressure are gender, height, weight, cholesterol, activity level, and the presence of cardiovascular disease
- Concluded further study needs to be done to examine efficacy of treatment plans that include diet changes and/or increased activity level to target weight and cholesterol

Performing Data Mining Methods on Ovarian Cancer Data - Class Project in R (USF)   *Nov - Dec 2022*
- Applied classification analysis to predict a Benign Ovarian Tumor or Ovarian Cancer
- Performed cluster analysis to categorize ovarian tumors
- Results showed high accuracy of the decision tree for classification analysis and overall two types of ovarian tumors in the dataset with low total variance
- Highlighted the need for more data in this particular set due to low total variance in the cluster analysis

WORDLE Data Analytics - Class Project in Jupyter Notebook (USF)   *Apr - May 2022*
- Conducted general explanatory data analysis of the game Wordle through Jupyter Notebook in python
- Coded natural language processing programs to assess and analyze letter and parts of speech data
- Used findings to determine the best starting word to play Wordle

Optimizing Logistic Regression (Binary Classification) - Class Project in Python (USF)   *Dec 2021*
- Wrote Python code to minimize (or optimize) the logistic regression objective function using gradient descent, Newton's method, and the stochastic gradient method with a batch size of 1
- Used implementations of the above optimization algorithms to train logistic regression models from scratch using the "Breast Cancer Wisconsin" and MNIST datasets

- Plotted objective function value versus iteration or epoch to compare the performances of the above optimization algorithms

Case Study on the World Happiness Report of 2020 - Class Project in R (USF)   *Nov - Dec 2020*
- Used 9 different variables from Gallup Survey data to create various models to determine factors of happiness and see the pandemic's effect on happiness and compare the differences among countries
- Results showed that European and East Asian countries were happier than the rest of the world compared to other global regions, potentially reflecting how well they handled the pandemic, as well as correlations between variables in relation to a country's state of happiness
- Overall, there appeared to be a lot of Perceptions of Corruption regardless of data from any variable, which seemed to corroborate and reflect the many global protests and social unrest that occurred throughout 2020 globally

EXPERIENCE

Teaching Assistant   *Aug 2021 - May 2023*
University of San Francisco - San Francisco, CA
- Assisted professors in keeping track of students' work in Data Science and Mathematics classes (2 classes in Data Science w/ R, 1 class in Elementary Statistics, and 2 classes in Discrete Mathematics)
- Graded student assignments while providing feedback on what students got wrong or did not understand
- Provided academic and college-related support for any students or underclassmen who ask for it

Redwoods Analyst   *Jun - Aug 2022*
DaVita Kidney Care - San Francisco, CA
- Worked with the DaVita Clinical Research team on research tasks involving qualitative research and Natural Language Processing
- Programmed survey for Care Partner Stress on Qualtrics and aided in the launching process
- Conducted preliminary and analytical research on the Care Partner Stress survey results & presented findings to the team

Student Web Developer   *Sept 2018 - May 2019*
Douglas High School — Minden, NV
- Created websites for 4 high school teachers coded from scratch in HTML and CSS, as well as Google Sites
- Leader of a 3-person team to redesign high school's website utilizing HTML and CSS
- Successfully led team by coordinating workstreams, work process, and time management, meeting all deliverables and deadlines
- Impact results were improved organization of content on the website so that all audiences (faculty, students, and parents) can better navigate the website as well as enhanced modern, visually appealing look

VOLUNTEERING

Mentor   *April 2022*
Women in Data Science (WiDS) - San Francisco Girls' School, San Francisco, CA
- Mentoring for High School Data Science Workshop hosted by WiDS
- Was personally reached out for this due to my outstanding work in the USF Math & Stats department and dedication to the field
- Oversaw a group of girls working on a data set in which their end goal was to produce a visualized story of the data with open-ended approaches by the girls
- Tasks included guiding them, providing feedback, making sure they were on track, and answering any questions they had about my college life

CONFERENCES ATTENDED

SACNAS National Diversity in STEM Conference - Oregon Convention Center, Portland, OR
- Received funding to attend the in-person conference
- Networked with accomplished Latine/Chicane people in various fields and academia
- Helped with recruitment for Stanford graduate programs, including my home program
- Mentored and advised applicants to my home program

Nebraska Conference for Undergraduate Women in Mathematics (2023) - University of Nebraska Lincoln, Lincoln, NE
- Received funding to attend the in-person conference
- Networked with accomplished women in the field
- Became inspired and motivated to continue with plans of pursuing a PhD
- Realized how important belonging and community-building are to spaces in STEM fields
- Created a new dream to one day lead and create spaces for the Latine community

Women in Data Science (2022) - Stanford University, Stanford, CA
- Received funding to attend the in-person conference
- Met successful women in data science from all backgrounds
- Gained personal confirmation on my career goals and decision for grad school

Grace Hopper Conference (2021) - Online
- Awarded a scholarship to attend the online conference
- Participated in 1-on-1 chats with people working in the industry to receive advice on career paths
- Helped bring clarity to my future career goals

Hack the Gap Hackathon (2021) - Online
- Coded a website from scratch in one day with a team called "Minnesota Mutual Aid" which was our submission for the hackathon
- Project is centered on bringing awareness to localized charities and nonprofit organizations around the Twin Cities area that do not get as much visibility compared to government-funded, national, and mainstream organizations
- Minnesotan locals can submit requests for putting up more donation sites that are in need of recognition for receiving aid

Nebraska Conference for Undergraduate Women in Mathematics (2021) - Online
- Three-day online conference where the lovely and strong women in mathematics gathered to demonstrate each other's accomplishments and work in the field of math and science
- Motivational experience where all presenters, panelists, speakers, and attendees supported each other to move forward with their careers

Tapia Conference (2020) - Online
- Awarded a scholarship to attend the conference
- Consisted of diversity and inclusivity in the Computing, Tech, and STEM worlds
- Received inspiration to move forward with major

SKILLS

- **Coding Languages**: HTML (Expert), CSS (Expert), R (Proficient), Python (Proficient), SQL (Proficient), Jupyter Notebook (Proficient), Java (Proficient), Javascript (Beginner)
- **Software & App Programs**: Adobe Photoshop, Adobe Illustrator, Adobe Flash, Adobe Dreamweaver, Google Suite (Docs, Slides, Sites), Microsoft Excel, Qualtrics, Github, Postgres
- **Language**s: Spanish (Native)